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redder colour : the combustion, in fact, is not so intense, because the access of air is retarded, the particles of carbon which give the light are not so highly ignited, but are more abundant, and are ignited for *a longer time*, thereby causing an increase of light.

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#### STEPHEN'S LIFE-PRESERVER, OR PORTABLE LIFE-BALL AND LINE.

THIS apparatus consists of a hollow metal ball, about five inches in diameter, to which are brazed or riveted three eyes, and a line fixed, of about twenty fathoms or upwards in length, of half-inch Hambro' layed rope, having a sliding thimble to form the noose. In order to prevent its being damaged, it is quilted over with net-work, similar to a child's ball, being, however, first cased with cork, so as to render it more buoyant. Through one of the eyes is rove the line which passes round the ball, and is again brought through the eye in the opposite direction ; both parts are then seized together outside the eye, leaving sufficient line, with a thimble in the end, to form a bight. The standing part of the line is then passed through the thimble, and a noose formed sufficiently large to admit of it passing over a person's shoulders, to fasten round his waist. The other two eyes are placed opposite to each other, through which a piece of line is rove round the ball, and seized in four places, so as to form grummetts or handles to the "life-ball," in order that it may be the more readily held or caught hold of.

The life-ball, from its portability, can be carried to any part of the vessel, and thrown in the direction of the person overboard ; whereas the life-buoy, when put in operation on a casualty occurring, although it may be immediately let go and dropped, yet from its nature will remain stationary in the wake of the ship, and unless the person be a good swimmer it is almost impossible he can reach it, particularly should he happen to fall overboard to leeward, a circumstance which more frequently happens than otherwise.

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#### MR. DEFRIES' DRY GAS-METER.

THE description of this ingenious machine will be facilitated by comparing it with the double-acting steam-engine, with which it is closely analogous, although the corresponding parts move with so little friction, that the trifling pressure of one or two pounds per square inch, thrown on the gas in the mains, is sufficient to move